Claims

What is claimed is:

1.   A system that programs a memory cell comprising:
a memory cell to be programmed comprising;

a first electrode that forms a base for the memory cell;

a functional layer formed over the first electrode to facilitate charge migration in the memory cell,

a second electrode formed over the functional layer and operative with the first electrode to activate a selective memory portion in the memory cell, and

a control component that applies an external stimulus to the memory cell, to affect a property associated with the memory cell, the control component comprising a comparator that compares a value of the property with a threshold value, to determine a program state of the memory cell.

2.   The system of claim 1, the control component further comprising a generator and a ballast resistor.

3.   The system of claim 1, wherein the property is an optical or electrical state of the memory cell.

4.   The system of claim 1, wherein the external stimulus is a voltage.

5.   The system of claim 3, wherein the electrical state is an impedance of the memory cell that represents more than one bit of information.

6.   The system of claim 1, the functional layer is a selectively conductive media further comprising an organic light emitting material.

7.   The system of claim 1, the functional layer comprises a passive layer, an active layer and a barrier layer.

8.   The system of claim 1, the second electrode comprising a plurality of electrodes to facilitate decoupling of write and read circuits that program the memory cell.

9.   A method of programming a memory cell comprising:

providing a memory cell comprising a selectively conductive layer that is sandwiched between electrodes;

applying an external stimulus to the memory cell to affect a property associated with the memory cell; and

comparing the property with a predetermined threshold value.

10.   The method of claim 9, wherein applying an external stimulus comprises applying a voltage to the memory cell.

11.   The method of claim 9, wherein comparing the property with a predetermined threshold value comprises comparing an electric current passing through the memory cell with a predetermined threshold value.

12.   The method of claim 9, further comprising removing the external stimulus based on an outcome of comparing a property with a predetermined threshold value.

13.   A method of programming information in a memory cell comprising:

applying an electric field pulse that exceeds a threshold value to the memory cell, the memory cell comprising a selectively conductive layer that is sandwiched between electrodes; and

controlling at least one of an impedance of the cell, current flowing through the cell, and a time duration that current flows through the cell, to program the memory cell.

14.   The method of claim 13 further comprising comparing a current flowing through the cell with a predetermined value.

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15. The method of claim 14 further comprising removing the electric field pulse based on an outcome of comparing a current flowing through the cell with a predetermined value.

16. The method of claim 15 further comprising applying a further electric pulse to read information from the memory cell.

17. The method of claim 13 further comprising applying a reverse electric field pulse to erase programmed information.

18. A memory cell comprising:

a first electrode that forms a base for the memory cell;

a functional layer formed over the first electrode to facilitate charge migration in the memory cell,

a second electrode formed over the functional layer and operative with the first electrode to activate a selective memory portion in the memory cell, and

a diode component coupled to the first or second electrode.

19. The memory cell of claim 18, wherein the diode component is positioned between the first and the second electrode.

20. The memory cell of claim 18, wherein the diode component comprises a photo sensor element.

21. The memory cell of claim 18, wherein the diode component forms a layer comprising at least one of electro conductive material, semiconductor material, and organic material.

22. A system for programming a memory cell comprising:

means for regulating a property associated with a memory cell; and

means for setting a program state based on the regulated property of the memory cell.